S/051/62/013/004/007/023
E039/E491

AUTHORS: Zelikin, Ya.M., Paracheva, G.T.

TITLE: On the peculiarities of the zinc oxide thermoluminescence

PERIODICAL: Optika i spektroskopiya, v.13, no.4, 1962, 554-557

TEXT: Samples of ZnO are prepared from triplo vacuum distilled metallic zinc by calcining in air at 1000°C for 1 hour. The total metallic impurity is shown by spectroscopic analysis to be not more than 10-4%. Such ZnO is weakly luminescent at room temperature in the yellow and green bands. Samples of this ZnO were heated for 30 minutes in pure argon at the following temperatures: 480, 555, 630, 730, 815, 910, 980 and 1020°C. For firing temperatures up to 730°C the intensity of the luminescence progressively decreases but for temperatures of 815°C and above there is a sharp increase in intensity. In all cases the luminescence is green. Thermoluminescence curves for the samples calcined at 480 to 730°C have three maxima at -150, -130 and -110°C. The first and last peaks are green and the middle one basically yellow. Samples fired at 815°C have no peak at -110°C and there is a redistribution of intensity between the other two

peaks. Firing at temperatures above 815°C produces a sharp fall in intensity of the yellow peak and a general reduction in the total light. By firing the ZnO for 30 minutes in oxygen there is a general strengthening of the yellow band and a weakening of the green band in the luminescence at room temperature. After firing at 480 to 730°C in oxygen there are only two peaks in the thermoluminescence curve (-150 and -130°C). It is suggested that near centres responsible for yellow luminescence there are situated only trapping centres of average depth, but near the centres responsible for green luminescence there are centres of different depths. There are 4 figures.

SUBMITTED: July 29, 1961

Card 2/2

ZELIKIN, Ya.M.; ZHUKOVSKIY, A.P.

Yellow luminescence of zinc oxide. Opt. i spektr. 11 no.3: 397-402 S '61. (MIRA 14:9)

(Zinc oxide)

S/048/61/025/004/008/048
B104/B201

24,3500

AUTHOR: Zelikin, Ya. M.

TITLE: Effect of production conditions upon the luminescence of zinc oxide

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, v. 25, no. 4, 1961, 461-463

TEXT: The present paper has been read at the 9th Conference on Luminescence (Crystal Phosphors), Kiyev, June 20-25, 1960. Zinc oxide exhibits in the visible region a green (~ 510 mμ) and a yellow (~ 610 mμ) luminescence band. The author studied the effect of various metal additions upon the yellow band in order to clarify the part played by impurities and the nature of the luminescence centers. For bivalent cadmium and magnesium, for trivalent aluminum, gallium and indium it was possible to give evidence of a sharp rise of the yellow band. It was further found by experiments that the yellow band appeared also with pure zinc oxide. The conception according to which the yellow band is related to a high-temperature modification of ZnO is regarded as probably correct by the author on the basis

Effect of production... S/048/61/025/004/008/048
B104/B201

of his own results, obtained when studying the formation of the yellow band at temperatures near the assumed polymorphic conversion temperature. Crystallographic data and X-ray analysis, however, contradict this notion. Still, the possibility that this lattice modification does exist around the defects acting as luminescence centers is not excluded. It could be shown with Debye powder patterns that there exists no high-temperature modification of ZnO. In the author's opinion, the presence of oxygen while sintering is necessary for the formation of yellow luminescence centers (sintering must not be performed below 700°C). The yellow band intensification caused by metals is said to be explained by the defects formed by the latter. Data regarding the thermal de-excitation of ZnO specimens sintered at different temperatures in an oxygen flow showed that in those specimens in which the yellow band appears, a new peak of thermal de-excitation may also be observed. There are 1 figure and 13 references: 9 Soviet-bloc and 4 non-Soviet-bloc. The reference to the English-language publication reads as follows: Ref. 6: Randall, Trans. Faraday Soc., 35, 2 (1959)

ASSOCIATION: Nauchno-issledovatel'skiy fizicheskiy institut Leningradskogo gos. universiteta im. A. A. Zhdanova (Scientific Research Institute of Physics of Leningrad State University imeni A. A. Zhdanov)

Card 2/2

18.3100
24.7700

37802

S/120/62/000/002/030/047
E039/E435

AUTHOR: Zelikin, Ya.M.

TITLE: The preparation and properties of sublimated layers of the luminescent ZnO and ZnS

PERIODICAL: Pribory i tekhnika eksperimenta, no.2, 1962, 130-132

TEXT: By performing sublimation in hydrogen, layers of ZnO and ZnS are produced which are superior in texture and stability to those prepared in vacuo and also provide a convenient means for the parallel investigation of electrical and luminescent properties of the layer material. In the case of ZnO the following reaction occurs

$$ZnO + H_2 \rightleftharpoons H_2O + Zn$$

At the temperature of evaporation 650 to 700°C the equilibrium is displaced to the right forming Zn + H_2O while at lower temperatures the formation of ZnO and H_2 is favoured. The sublimations are performed in a conventional bell-jar apparatus and the temperature of the surface to be coated can be varied by means of a heating jacket. The properties of the ZnO layers are: thickness 1 to 15 μ; its luminescent spectrum covers 400 to

Card 1/2

The preparation and properties ...

600 mμ with a maximum at 510 mμ and its decay time is 10^{-6} sec. At room temperature the electrical conductivity is 1 to 5 $ohm^{-1}cm^{-1}$. At temperatures higher than -50°C the conductivity decreases with increasing temperature. The concentration of current carriers at room temperature is about $10^{18}cm^{-3}$. In the case of ZnS prepared in the same way the layer had high structural quality but little or no luminescence. By introducing chlorine into the ZnS by adding HCl to the hydrogen its luminescence can be greatly enhanced. The optimum conditions are: evaporation temperature 1000°C and layer temperature 550 to 600°C. Layers of thickness 1 to 10 μ can be produced with a maximum in the luminescent spectrum at 460 mμ. The method was developed in NIFI LGU for ZnO (1950) and ZnS (1953). F.D.Klement directed part of the work. There are 2 figures.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet
(Leningrad State University)

SUBMITTED: July 5, 1961

Card 2/2

USSR/Physics - Phosphors, Crystallic 11 Nov 50

"Mutual Relationship Between Temperature Quenching and Concentration Quenching in Certain Crystallophosphors," Ya. M. Zelikin, N. I. Ivanova, F. D. Klement, Phys Inst of Leningrad State U imeni Zhdanov

"Dok Ak Nauk SSSR" Vol LXXV, No 2, pp 181-184

Concn quenching of the green band of ZnS:Cu for various temp, i.e., I vs C for T = 20, 50, 100, 150°C; similarly for $BaCl_2$:Cu; and dependence of temp quenching (Theta) upon C (0.003-1.0 mol %) in $BaCl_2$:Cu, for various T. Submitted 13 Sep 50 by Acad A. N. Terenin.

178T98

ZELIKIN, Ya. M.

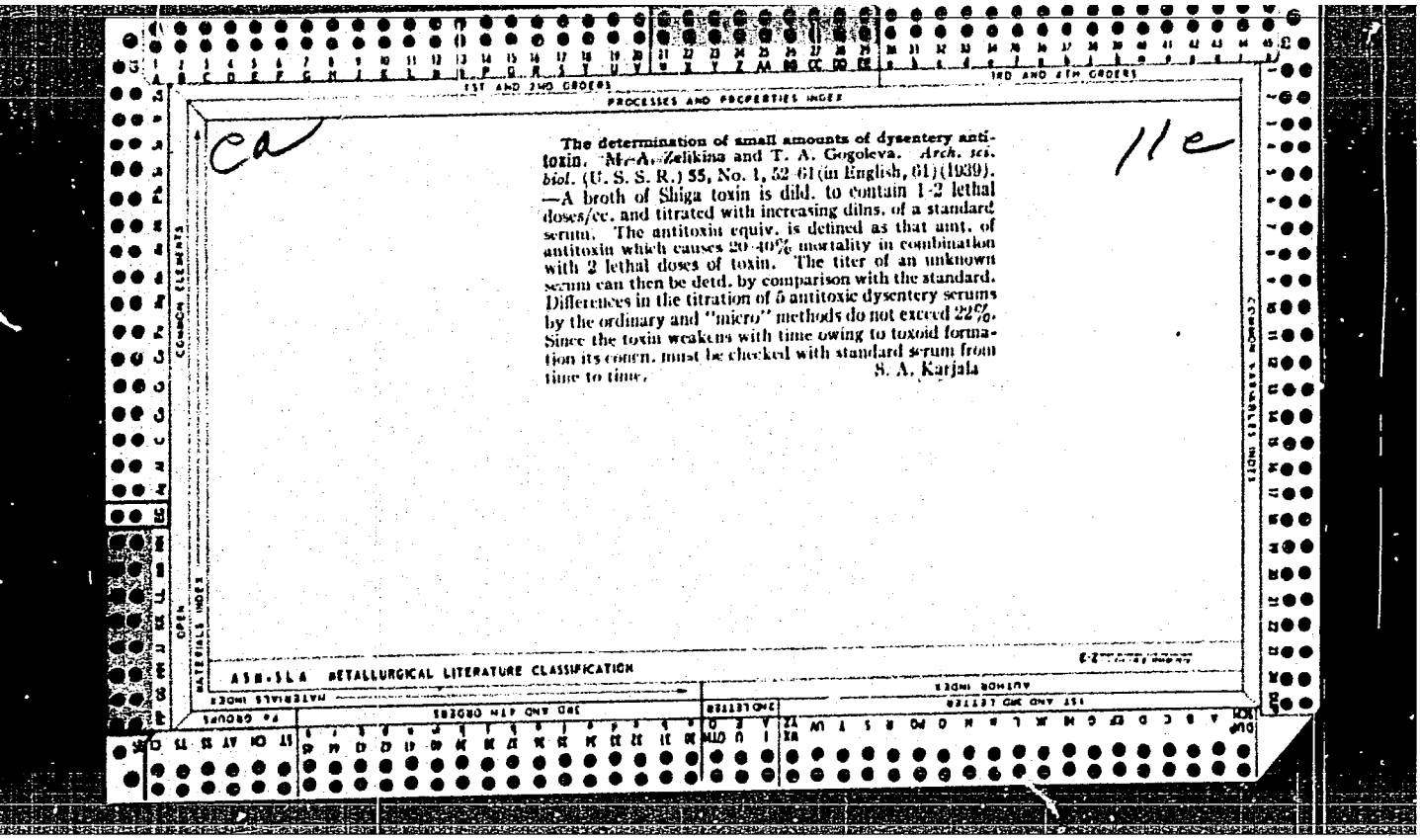
Effect of manufacturing conditions on the luminescence of zinc oxide. Izv. AN SSSR. Ser. fiz. 25 no.4:461-463 Ap '61. (MIRA 14:4)

1. Nauchno-issledovatel'skiy fizicheskiy institut Leningradskogo gosudarstvennogo universiteta imeni A. A. Zhdanova.
(Zinc oxide)

ZELIKIN, Ya.M.; USPENSKAYA, Ye.M.

Luminescence of zinc oxide obtained by thermal decomposition of certain salts. Opt. i spektr. 18 no.5:880-882 My '65.

(MIRA 18:10)



PROCESSES AND PROPERTIES INDEX

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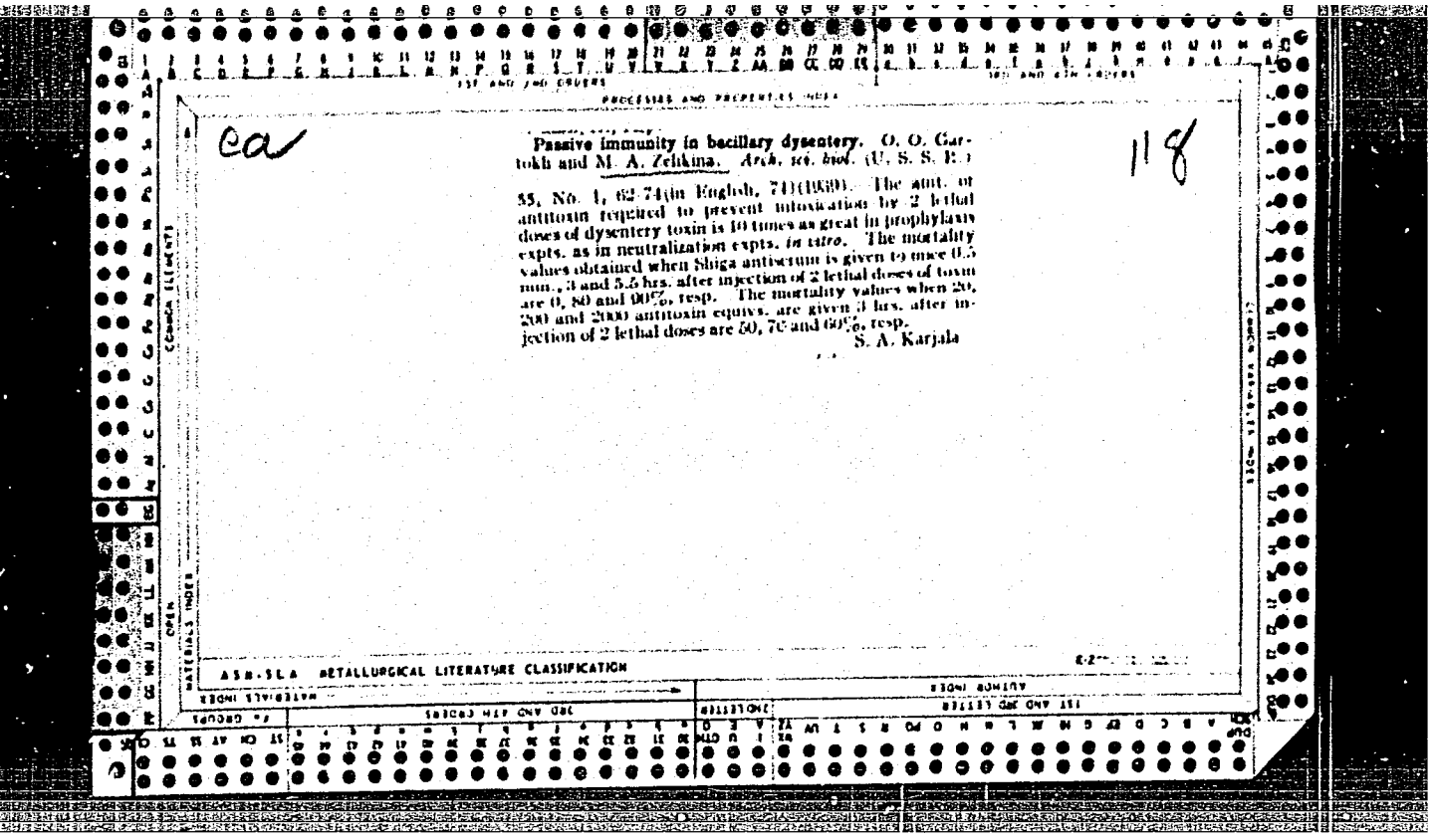
11e

The determination of small amounts of dysentery antitoxin. M. A. Zelikina and T. A. Gogoleva. *Arch. sci. biol.* (U. S. S. R.) 55, No. 1, 52–61 (in English, 61) (1939). —A broth of Shiga toxin is dild. to contain 1-2 lethal doses/cc. and titrated with increasing dilns. of a standard serum. The antitoxin equiv. is defined as that amt. of antitoxin which causes 20–40% mortality in combination with 2 lethal doses of toxin. The titer of an unknown serum can then be detd. by comparison with the standard. Differences in the titration of 5 antitoxic dysentery serums by the ordinary and "micro" methods do not exceed 22%. Since the toxin weakens with time owing to toxoid formation its concn. must be checked with standard serum from time to time. S. A. Karjala

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



ca

118

Passive immunity in bacillary dysentery. O. O. Gartokh and M. A. Zelkina. *Arch. sci. biol.* (U. S. S. R.) 55, No. 1, 62-74 (in English, 71) (1939). The amt. of antitoxin required to prevent intoxication by 2 lethal doses of dysentery toxin is 10 times as great in prophylaxis expts. as in neutralization expts. *in vitro*. The mortality values obtained when Shiga antiserum is given to mice 0.5 min., 3 and 5.5 hrs. after injection of 2 lethal doses of toxin are 0, 80 and 90%, resp. The mortality values when 20, 200 and 2000 antitoxin equivs. are given 3 hrs. after injection of 2 lethal doses are 50, 70 and 60%, resp.

S. A. Karjala

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

The dysentery antitoxin content of the blood of healthy persons, dysentery patients and dysentery bacillus carriers. M. A. Zelikina, T. A. Gogoleva and B. L. Itsikson. ~~*Arch. sci. biol.*~~ (U. S. S. R.) 55, No. 1, 75-83(in English, 83)(1939).—The equivs. of Shiga antitoxin in the blood of healthy persons, dysentery patients during the acute period of the disease or during convalescence, and chronic Shiga dysentery patients were 0.12, 0.96-3.8 and 54 units/cc. resp.

S. A. Karjala

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

* ZELIKINA, A. Z.

USSR / Microbiology - Microbes Pathogenic to Humans and Animals F-4

Abs Jour: Referat.Zh.Biol., No. 1, 1958, 729

Author : Petrosyan, E.A., Zelikina, A.Z., Kas'yanova,L.K.

Title : A Chemical Study of Antigen Complex in Sonne Dysentery Bacteria

Orig Pub: Nauchn. tr. Mosk. n.-i. in-ta vaktsin i syvorotok, 1956, 8, 423-441

Abstract: Antigens of Sonne dysentery bacteria obtained from the microbial mass by extraction with trichloracetic acid or by digesting with pancreatin are very similar in their chemical composition, differing only in that the antigens obtained by the first method contain somewhat less total nitrogen. Both these antigens possess high specific and antigenic properties. The antigenic prepara-

Card 1/3

Abs Jour: Referat. Zh. Biol., No. 1, 1958, 729

extraction from microorganisms by trichloracetic acid contains less nitrogen and considerably less reducing substances than antigen obtained in S-form from bacteria by the same method. Antigen from R-form is not precipitated by an antiserum, but in an 0.025 g dose creates protection in mice from 1 Dcl of live culture in 83% of cases. Antigenic preparations obtained from Sonne bacteria in an R-form by other methods are close to antigenic preparations from S-form in chemical composition, but are devoid of specificity and immunogenic properties.

ZELIKINA, G.Ya.; SEMENOV, R.I.

Determination of g-factors of the second excited p-levels in alkaline metals. Opt. i spektr. 18 no.3:539-540 Mr '65. (MIRA 18:5)

ZELIKINA, K.A.

Effect of the tapering radius of a needle on the readings of a profilograph. Nauch.trudy LTA no.94:123-130 '62. (MIRA 16:1)
(Surfaces (Technology)--Measurement)

ZELINSKIY, V. V.

USSR/Physical Chemistry - Molecules. Chemical Bonds. B-4

Abs Jour: Ref Zhur-Khimiya, No 5, 1957, 14384

Author : V. V. Zelinskiy, N. P. Emets, V. P. Kolobkov, L. G. Pikulik

Inst :

Title : Investigation of the capacity of complex organic molecules to fluoresce and phosphoresce

Orig Pub: Izv. AN SSSR, ser. fiz, 1956, 20, No 5, 507-513

Abstract: An investigation was made of the dependence of the probability of non-radiating transitions of excited molecules (from the unstable level to the metastable level r, from the unstable to the basic without q radiation, from the metastable to the basic with π radiation, and from metastable to the basic without radiation q_2) on the temperature, solvent and molecule structure. Probability of r is apparently only weakly dependent on temperature. Probability q_2 changes little with temperature for some organic compounds while for

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[illegible]. Determination of the g-values of second excited p-levels of alkali metals

[illegible] spektrokhimiya, v. 18, no. 3, 1965, 539-540

ABSTRACT: To obtain more information on the interconfigurational interactions which cause the oscillator strengths of the second doublets of the principal series of KI, RbI, and CsI to differ from the theoretical values, the authors determined

with greater accuracy are being planned. "The authors thank P. F. Gruzdev for

ZELIKINA, K.A.

Contact deformation in measuring the roughness of a surface. Nauch. trudy LTA no.96:103-111 '61. (MIRA 17:3)

ZELIKINA, S.M., kand.biologicheskikh nauk

M.V.Rytov's pedagogical views. Uch.zap.Kar.ped.inst. 7:3-15 '58.
(MIRA 15:2)

(Rytov,Mikhail Vasil'evich,1846-1920)(Agriculture--Study and teaching)

ZELIKINA, S.M.

Charles Darwin's theory and the Russian agricultural press in the 1860's and 1870's. Uch.zap. Kar.ped.inst. 8:57-78 '59. (MIRA 13:11)

(Darwin, Charles Robert, 1809-1882)

ZELIKINA, T. I.

"Changes in Tissue Fiber during the Development Process of Larva of Calliphora Erythrocephala Mg.," Dok. AN, 65, No. 1, 1949.

Mbr., Inst. Zoology, Moscow Order Lenin State Univ. im. M.V. Lomonosov, -c1949-.

ZELIKINA, T. I.

"Comparative Analysis of Regenerative Processes of the Nervous Tissues of Higher and Lower Vertebrates." Cand Biol Sci, Moscow Veterinary Acad, Moscow, 1953. (RZhBiol, No 1, Sep 54)

SO: Sum 432, 29 Mar 55

ZELIKINA, T.I.

Materials on the regeneration of nerve tissue in certain higher and lower vertebrates. Trudy Inst.morf.zhiv. no.11:356-397 '54. (MLRA 8:2)
(Nerves) (Regeneration (Biology))

SHEYVERKHMAN, B.Ye., otvetstvennyy redaktor [deceased]; POKROVSKIY, N.B., otvetstvennyy redaktor; ZELIKINA, T.I., redaktor izdatel'stva; SHEVCHENKO, G.N., tekhnicheskiy redaktor

[Perception of sound signals under various acoustical conditions; proceedings of a scientific conference held April 1954] Vospriiatie zvukovykh signalov v razlichnykh akusticheskikh usloviiakh; trudy nauchnoi konferentsii, sostoiavsheisia v aprele 1954 g. Moskva, 1956. 190 p. (MIRA 10:1)

1. Akademiya nauk SSSR. Institut biologicheskoy fiziki.
(HEARING)

17 (4, 10)

AUTHORS: Shabadash, A. L., Zelikina, T. I., Agrachova, N. D. SOV/20-128-6-55/63

TITLE: Cytochemical Changes in Nucleoproteins of Nerve Cells in Mammals Observed at Early Stages of Radiation Injuries

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 128, Nr 6, pp 1290-1293 (USSR)

ABSTRACT: The changes in ribonucleoproteins (RNP) in the central nervous system of mammals have caused reactive processes which are not comprehended by the usual pathologic-histological methods (Refs 16-19). The investigation of the physicochemical properties of mitochondria with a simultaneous consideration of their morphology proved to be most promising. Until recently, most investigators had represented the opinion that the nervous system is radioresistant (Refs 23, 26 et al), which has, however, more and more been refuted lately (Refs 1, 2, 6, 8, 9, 21, 24). The authors irradiated once, with a dose of 1000 r, white rats on a γ-plant according to A. V. Bibergal' et al (Ref 3). After 0.5, 1, 2, 3, 3.5, 4, 5, 6 and 24 hours, the rats were totally fixed by an injection into the blood vessel, and treated according to A. L. Shabadash's method (Refs 16-19)

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for determining the RNP (dyeing with methylene blue at different pH-values). Very acid pH-values of the isoelectric points (IEP) of the mitochondria and of the tigroids in afferent ganglionic neurons, as compared with similar indices of motoneurons of the spinal cord, and of the neurons of the cerebral hemispheres, were characteristic of normal (control-) rats (Table 1). Histochemical changes in the IEP of the RNP in mitochondria, in the tigroid and cytoplasm, showed - after one single total-γ-irradiation - sharp disturbances (characteristic of each neuron category) of the physicochemical state of nucleoproteins of the cytoplasm and of the organoids (Table 2). The quantitatively biggest changes were detected in the mitochondria of the afferent cells, followed - in decreasing order - by the shifting in the mitochondria of the motoneurons of the 4th, 3rd and 5th layers of the cerebral cortex, in the tigroid of the motoneurons, and finally in the tigroid of the cells of the cerebral cortex. The most considerable changes in RNP were determined in structures which normally have low IEP. As had been proved before (Refs 16-20), basic dyes are bound by RNP thanks to the free phosphoric acid groups, and their

quantity bound is proportional to that of these free groups. Therefore, the weaker coloring suggests considerable changes in the composition of the polymeric molecule. The colorable zone is much restricted by the IEP shifting. The duration of this shifting is different for individual organoids and cells, or types of neurons respectively. Characteristic shiftings also occur in the "diffuse" RNP of the cytoplasm. The IEP shiftings are particularly strong in the ganglionic cells. Thus, the method used by the authors made it possible to detect cytochemical changes in the central nervous system owing to total irradiation. As the computation scale of pH is logarithmic and corresponds to very big quantitative changes of acid and alkaline groups in the RNP colloidal salts, the physicochemical modification of RNP in the mitochondria can hardly be overrated. The authors' data are in agreement with the biochemical publication data on the influence of ionizing radiation on nucleoproteins (Refs 5, 7, 11, 13, 22, 25). There are 1 figure, 2 tables, and 26 references, 18 of which are Soviet.

Cytochemical Changes in Nucleoproteins of Nerve Cells in Mammals Observed at Early Stages of Radiation Injuries SOV/20-128-6-55/63

ASSOCIATION: Institut biologicheskoy fiziki Akademii nauk SSSR (Institute of Biological Physics of the Academy of Sciences, USSR)

PRESENTED: April 29, 1959, by L. S. Shtern, Academician

SUBMITTED: April 7, 1959

Card 4/4

SHABADASH, A.L.; ZELIKINA, T.I.; AGRACHEVA, N.D.

Cytochemical changes in the mammalian nervous system following local X irradiation; preliminary report. Radiobiologiia 1 no.1: 42-44 '61. (MIRA 14:7)

1. Institut biologicheskoy fiziki AN SSSR, Moskva.
(X RAYS--PHYSIOLOGICAL EFFECT)
(NERVOUS SYSTEM)

ZARKH, Ye.N.; ZELIKINA, T.I.; SHABADASH, A.L.; SHUNGSKAYA, V.Ye.

Methods of studying certain characteristics of the tigroid in the spiral cochlear ganglion of the inner ear. Biofizika 6 no. 2:233-237 '61. (MIRA 14:4)

1. Institut biologicheskoy fiziki AN SSSR, Moskva.
(EAR—INNERVATION)

88578

S/020/61/136/001/035/037
B016/B052

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AUTHORS: Shabadash, A. L., Zelikina, T. I., and Agracheva, N. D.

TITLE: Cytochemical Reactions of Ribonucleoproteids of Mitochondria and the Tigroid of Nerve Cells Within the First Minutes After Exposure to Gamma Rays

PERIODICAL: Doklady Akademii nauk SSSR, 1961, Vol. 136, No. 1, pp. 222-225

TEXT: The authors continued analyzing the role of the central nervous system in the "radiation reaction" of white rats. In Refs. 1 - 3, they had proved that already 30 minutes after one single exposure to γ-rays, the stimulus threshold of neurons in the central nervous system of mammals is disturbed by considerable histochemical changes. In this paper, the authors attempted to explain the shortest period of time necessary for the occurence of physicochemical disturbances in the neuron structure, which can be registered by their methods. Studies on the isoelectric point (i.e.p.) of ribonucleoproteids (RNP) in the organoids of nerve cells showed that fundamental changes are by no means early processes of damage, but very early biological processes similar to the damage of blood-forming

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S/020/61/136/001/035/037
B016/B052

Cytochemical Reactions of Ribonucleoproteids of Mitochondria and the Tigroid of Nerve Cells Within the First Minutes After Exposure to Gamma Rays

organs. They are exactly located in concrete structures. The experimental conditions are described in Ref. 2. The radiation intensity was 100 r/min, and the exposure time was 10 min for a dose of 1000 r. The changes of i.e.p. were determined from the intensity of selective sorption of methylene blue as dependent on the pH of the medium. The earliest changes in the nervous cells occur in i.e.p. shifts of the RNP of their mitochondria and tigroid clumps in alkaline direction. Table 1 gives the quantitative changes of i.e.p. in the last-mentioned organoids of various categories of neurons within 1, 5, 10, 12, 17, 30, 40, 50, and 60 min. Hence, the authors found that the largest i.e.p. shifts are characteristic of mitochondria of afferent ganglious cells. A similar shift is also characteristic of the RNP of mitochondria of the fourth layer of the cerebral cortex (parietal region). Only physico-chemical characteristics are considerably disturbed, whereas the morphological ones remain unchanged. Within the first minutes, the above shifts differed in mitochondria and tigroid. Hence, the authors conclude that not the participation of RNP in any structure is decisive for the extent and moment of the shift, but the

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88578

Cytochemical Reactions of Ribonucleoproteids of Mitochondria and the Tigroid of Nerve Cells Within the First Minutes After Exposure to Gamma Rays

S/020/61/136/001/035/037
B016/B072

total characteristics of the symplex concerned, which differ in mitochondria and tigroid. The i.e.p. characteristic of a structure in normal state, however, may be used as sensitivity index for ionizing radiation. The dynamic specialization of large sections of the central nervous system characterizes the original cytochemical properties of nerve cells. Hence, cytochemical indices may serve as standard characteristics for a classification into concrete neutron categories. In the authors' view, the i.e.p. shift in alkaline direction is a protective mechanism. There are 1 figure, 1 table, and 13 references: 11 Soviet and 1 French.

ASSOCIATION: Institut biologicheskoy fiziki Akademii nauk SSSR (Institute of Biophysics, Academy of Sciences USSR)

PRESENTED: July 25, 1960, by D. S. Shtern, Academician

SUBMITTED: July 19, 1960

Card 3/3

SHABADASH, A.L.; AGRACHEVA, N.D.; ZELIKINA, T.I.

Periodicity of cytochemical changes in the ribonucleoproteins in the cells of the central nervous system in the latent period and in the initial stage of the clinical appearence of radiation injury. Radiobiologiia 2 no.1:105-114 Ja '62 (MIRA 18:1)

SHABADASH, A.L.; ZELIKINA, T.I.; AGRACHEVA, N.D.

Cytochemical indications of inhibited states of cells of the central nervous system in mammals. Dokl.AN SSSR 145 no.3:657-660 Jl '62. (MIRA 15:7)

1. Institut biologicheskoy fiziki AN SSSR. Predstavleno akademikom I.S.Beritashvili.
(MITOCHONDRIA) (INHIBITION)

SHABADASH, A.L. (Moskva, G-151,pr.Kutuzova,24,kv.114); ZELIKINA, T.I. (Moskva, Butyrskaya ul., 84, kv.1; AGRACHEVA, N.D. (Moskva 2, Truzhenikov per., 4, kv.18)

Cytology and cytochemistry of ribonucleoproteins in mitochondria and tigroid of the cells of the central nervous system during the latent period of radiation sickness. Arkh. anat., gist. i embr. 44 no.2:3-9 F '63. (MIRA 17:2)

1. Institut biologicheskoy fiziki AN SSSR (Moskva).

SHABADASH, A. L.; ZELIKINA, T. I.; AGRACHEVA, N. D.

Cytochemical characteristics of ribonucleoproteids and the deoxyribonucleoproteid complex in the nucleolus of nerve cells. Dokl. AN SSSR 155 no. 2:445-447 Mr '64. (MIRA 17:5)

1. Institut biologicheskoy fiziki AN SSSR. Predstavleno akademikom A. N. Belozerskim.